

Amendments in the Specification

Please delete the text inserted on page 5, after line 12, in the reply dated July 2, 2002. The text to be deleted recites:

-- The HPT1, hPEPT1, D2H, and hSI receptors were selected for cloning as GIT receptor targets based on several criteria, including: (1) expression on surface of epithelial cells in gastro-intestinal tract (GIT); (2) expression along the length of small intestine (HPT1, hPEPT1, D2H); (3) expression locally at high concentration (hSI); (4) large putative extracellular domains facing into the lumen of the GIT; and (5) extracellular domains that permit easy access and bioadhesion by targeting particles.

The four recombinant receptor sites screened with the peptide libraries additionally have the following characteristics:

sucrose and other sugars, represents 9% of brush border membrane protein in

<u>Receptor</u>	<u>Characteristics</u>
D2H	Transport of neutral/basic amino acids; a transport activating protein for a range of amino acid translocases
hSI	Metabolism of sucrose and other sugars, represents 9% of brush border membrane protein in Jejunum
HPT1	di/tri peptide transporter or facilitator of peptide transport
hPEPT1	di/tri peptide transporter

6.2 Cloning of Extracellular Domain of Selected Receptor Site

The following receptor domains were cloned and expressed as His-tag fusion proteins by standard techniques:

<u>Receptor</u>	<u>Domain (amino</u>
	<u>acid residues)</u>

hPEPT1 ^a	391-571
HPT1 ^b	29-273
hSI ^c	272-667
D2H ^d	387-685

a ——— Liang et al., 1995, J. Biol. Chem. 270: 6456-6463;

b ——— Dantzig et al., 1994, Association of Intestinal Peptide Transport with a
Protein Related to the Cadherin Superfamily;

c ——— Chantret et al., Biochem. J. 285: 915-923;

d ——— Bertran et al., J. Biol. Chem. 268: 14842-14949.

The receptor proteins were expressed as His-tag fusion proteins and affinity purified under denaturing conditions, using urea or guanidine HCl, utilizing the pET His-tag metal chelate affinity for Ni-NTA Agarose (Hochuli, E., Purification of recombinant proteins with metal chelate adsorbent, Genetic Engineering, Principals and Methods (J.K. Setlow, ed.), Plenum Press, NY, Vol. 12 (1990), pp. 87-98).

As indicated in WO 98/51325, phage which showed specificity to a GIT receptor was further characterized by ELISA on a variety of recombinant proteins. Phage which continued to exhibit GIT receptor specificity was sequenced. Their insert sequences are summarized as follows:

————— SEQ.

hSI ID.NO TARGET BINDING PHAGE INSERT SEQUENCE

S15 16. RSGAYESPDGRGGRSYVGGGGGCGNIGRKHNLWGLRTASPACWD

S21 17. SPRSFWPWSRIHESFGISNYLGCGYRTCISGTMTKSSPIYPRHS

S22 — 18. — SSSSDWGGVPGKWRERFKGRGCCISITSVLTGKPNPCPEPKAA
Sni10 — 19. — RVGQCTDSDVRRPWARSCAHQGCCGAGTRNSHGCITRPLRQASAH
Sni28 — 20. — SHSGGMNRAYGDVFRELRDRWNATSHHTRPTPQLPRGPN
Sni34 — 21. — SPCGGSWGRFMQGGFLGGRTDGCCAHRNRTSASLEPPSSDY
Sni38 — 22. — RGAADQRRGWSNLGLPRVGWDAIAHNSYTFSTRRPRPP
Sni45 — 23. — SGGEVSSWGRVNDLCARVSWTGCGTARSARTDNKGFLPKHSSLR
SniAX2 — 24. — SDSGDGDIHYGLRGGVRCSLRDRGCCGLALSTVHIAGPPSFYPKLSSP
SniAX4 — 25. — RSLGNYGVTGTVDVTVLPMPGHANHLGVSSASSSDPPRR
SniAX6 — 26. — RTTTAKGCLLGSFGVLSGCSFTPTSPPPHILGYPPHSVN
SniAX8 — 27. — SPKLSSVGVMTKVTELPTEGPNAISIPISATLGPRNPLR

D2H

DAB3 — 28. — RWCGAELCNSVTKKFRPGWRDHANPSTHHIRTPPPSQSSP
DAB7 — 29. — RWCGADDPGASRWRGGNSLFGCGLRCSAAQSTPSGRIHSTSTS
DAB10 — 30. — SKSGEGGDSSRGETGWARVRSHAMTAGRFRWYNQLPSDR
DAB18 — 31. — RSSANNCEWKSDDWMRRACIARYANSSGPARAVDTKAAP
DAB24 — 32. — SKWSWSSRWGSPQDKVEKTRAGCGGSPSSTNCHPYTFAPPPQAG
DAB30 — 33. — SGFWEFSGRLWDGENRKSVRSGCGFRGSSAQQGPCVTPATIDKH
DAM 5 — 34. — SESGRCRSVSRWMTTWQTQKGGCGSNVSRGSPLDPSHQGTGHATT
DAX23 — 35. — REWRFAGPPLDLWAGPSLPSFNASSHPRALRTYWSQRPR
DAX24 — 36. — RMEDIKNSGWRDSCRWGDLRPGCGSRQWYPSNMRSSRDYPAGGH
DAX27 — 37. — SHPWYRIHWNHIGDFSGSGQSRHTPPESPHPGRPNATI
DCX8 — 38. — RYKHDIGCDAGVDKKSSSVRGCGGAHSSPPRAGRGRGTMTVSRL
DCX11 — 39. — SQGSKQCMQYRTGRLTVGSEYGCGMNPARIATPAYPARLLPRYR
DCX26 — 40. — SGRTTSEISGLWGWGDDRS-GYGWGNLTLRPNYIPYRQATNRIHYT
DCX33 — 41. — RWNWTVLPAATGGHYWTRSTDYHAINNHRPSIPHQHTPI
DCX36 — 42. — SWSSWNWSSKTTRLGDRATREGCGPSQSDGCPYNGRLTTVKPRT
DCX39 — 43. — SGSLNAWQPRSWVGGAFRSHANNLNPKPTMVTRIHT
DCX42 — 44. — RYSGLSPRDNGPACSQEATLEGCGAQRLMSTRRKGRNSRPGWTL
DCX45 — 45. — SVGNDKTSRPVSFYGRVSDLWNASLMPKRTTPSSKRHDDG

hPEPT1

PAX9 — 46. — RWPSVGYKNGSDDTIDVHSNDASTKRSLIYNHRRPLFP
PAX14 — 47. — RTFENDGLGVGRSIQKKSDRWYASHNIRSHFASMSPAGK
PAX15 — 48. — SYCRVKGGGEGGHTDSNLARSGCGKVARTSRLQHINPRATPPSR
PAX16 — 49. — SWTRWKGKHTHGGFVNKSPPGKNATSPYTDAQLPSDQGPP
PAX17 — 50. — SQVDSFRNSFRWYEPSRALCHGCGKRDTSTTRIHNSPDSYPTR
PAX18 — 51. — SFLRFQSPRFEDYSRTISRLRNATNPSNVSDAHNNRALA
PAX35 — 52. — RSITDGGINEVDLSSVSNVLENANSHIRAYRKHRPTLKR
PAX38 — 53. — SSKVSSPRDPTVPRKGGNVDYGCGRSSARMPTSALSSITKCYT
PAX40 — 54. — RASTQGGRGVAPEFGASVLGRGCGSATYYTNSTSEKDAMGHINYS
PAX43 — 55. — RWCEKHKFTAARCSAGAGFERDASRPPQPAHRDNTNRNA
PAX45 — 56. — SFQVYPDHIGLERHALDGTGPLYAMPGRWIRARPQNRDRQ
PAX46 — 57. — SRCTDNEQCPTDGTGRSRSVSNARYFSSRLLKTHAPHRP
P31 — 58. — SARDSGPAEDGSRAVRLNGVENANTRKSSRSNPRGRRHP
P90 — 59. — SSADAIEKCAESLLWWGRQNNSGCGSPTKKHLKHNRSQTSSSSH
5PAX3 — 60. — RPKNVADAYSSQDGAAGAEETSHASNAARKSPKHKPLRRP
5PAX5 — 61. — RGSTGTAGGERSGVNLHTRDNASGSGFKPWYPSNRGKH
5PAX7 — 62. — RWGWERSPSDYDSMDLGARRYATRTHRAPPVRLKAPLP
5PAX12 — 63. — RGWKCEGSQAAYGDKDIGRSRGCGSITKNNTNHAHPSHGAVAKI

HPT-1

HAX9 — 64. — SREEANWDGYKREMSHRSRFDATHLSRPRRPANSGDPN
HAX35 — 65. — EWYSWKRSSKSTGLGDTATREGCGPSQSDGCPYNGRLTTVKPRK
HAX40 — 66. — REFAERRLWGCDDLSWRLDAEGCGPTPSNRAVKHRKPRPRSPAL
HAX42 — 67. — SDHALGTNLRSDNAKEPGDYNECCGNNGNSTGRKVFNRRRPSAIFT
HCA3 — 68. — RHISEYSFANSHLMGGESKRKGCGINGSFSPTCPRSPTPAFRRT
H40 — 69. — SRESGMWGSWWRGHRLNSTGGNANMNASLPDPPVSTP
PAX2 — 70. — STPPSREAYSRPYSVDSDDTNAKHSSHNRRRLRTRSRPN-

Please delete the text inserted on page 6, after line 14, in the reply dated July 2, 2002. The text to be deleted recites:

~~--In a specific embodiment of the invention, proteins consisting of or, alternatively, comprising all or a fragment of a GIT transport receptor-binding peptide consisting of at least 5, 10, 15, 20, 25, 30 or 35 (contiguous) amino acids of the full-length GIT transport receptor-binding peptide are provided. In a specific embodiment, such proteins are not more than 20, 30, 40, 50, or 75 amino acids in length. Derivatives or analogs of GIT transport receptor-binding peptides include but are not limited to those molecules comprising regions that are substantially homologous to GIT transport receptor-binding peptides or fragments thereof (e.g., at least 50%, 60%, 70%, 80% or 90% identity) (e.g., over an identical size sequence or when compared to an aligned sequence in which the alignment is done by a computer homology program known in the art) or whose encoding nucleic acid is capable of hybridizing to a coding GIT transport receptor-binding peptide sequence, under stringent, moderately stringent, or nonstringent conditions.--~~